AMENDMENTS TO THE CLAIMS

(The following includes a complete listing of all claims with their current status indicated. Additional language is underscored; deletions are stricken through.)

1. through 8. and 13. (Canceled)

9. (Currently Amended) A semiconductor device precursor comprising:

a semiconductor substrate;

a layer of silicon dioxide formed on said semiconductor substrate, said layer of silicon dioxide having been doped with hydrogen ions deposited by a plasma source ion implantation process, wherein said layer of silicon dioxide is free of sputtered metal contaminants; and

a layer of polycrystalline silicon formed on said layer of silicon dioxide, said layer of polycrystalline silicon having a smooth morphology.

10. (Currently Amended) A field effect transistor comprising:

a semiconductor substrate;

a layer of silicon dioxide formed on at least a portion of said semiconductor substrate, said layer of silicon dioxide having hydrogen ions implanted therein by plasma source ion implantation, wherein said layer of silicon dioxide is free of sputtered metal contaminants;

a layer of polycrystalline silicon formed on at least a portion of said layer of silicon dioxide, said layer of polycrystalline silicon having a smooth morphology; and

a gate oxide formed on said semiconductor substrate from said layer of silicon dioxide having hydrogen ions implanted therein by plasma source ion implantation;

a source and a drain formed in said semiconductor substrate with a gate electrode formed on said semiconductor substrate from said layer of polycrystalline silicon to form a field effect transistor.

11. (Currently Amended) A memory array comprising:

a semiconductor substrate;

a layer of silicon dioxide formed on at least a portion of said semiconductor substrate, said layer of silicon dioxide having hydrogen ions implanted into at least a portion of said layer of silicon dioxide by plasma source ion implantation, wherein said layer of silicon dioxide is free of sputtered metal contaminants;

a layer of polycrystalline silicon formed over at least said portion of said layer of silicon dioxide into which said hydrogen ions were implanted, said layer of polycrystalline silicon having a smooth morphology;

a plurality of memory cells arranged in rows and columns, each of said plurality of memory cells comprising at least one field effect transistor; [and]

a gate oxide for each of said field effect transistors formed on said semiconductor substrate from said layer of silicon dioxide having hydrogen ions implanted therein by plasma source ion implantation;

a source and a drain for each of said field effect transistors formed in said semiconductor substrate; and

a gate electrode for each of said field effect transistors formed on said semiconductor substrate from said layer of polycrystalline silicon.

12. (Currently Amended) A semiconductor wafer comprising:

a wafer including a semiconductor substrate, said wafer being divided into a plurality of die;

a layer of silicon dioxide formed on at least a portion of said semiconductor substrate, on each of said plurality of die said layer of silicon dioxide having hydrogen ions implanted into at least a portion of said layer of silicon dioxide by plasma source ion implantation, wherein said layer of silicon dioxide is free of sputtered metal contaminants;

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a layer of polycrystalline silicon formed over at least said portion of said layer of silicon dioxide into which said hydrogen ions were implanted, said layer of polycrystalline silicon having a smooth morphology;

a repeating series of gate oxides formed on said semiconductor substrate from said layer of silicon dioxide having hydrogen ions implanted therein by plasma source ion implantation;

a repeating series sources and drains for at least one field effect transistor formed in each of said plurality of die, said series of gate oxides, sources and drains being formed in said semiconductor substrate; and

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a repeating series of gate electrodes for at least one field effect transistor formed on each of said plurality of die, said series of gate electrodes being formed on said semiconductor substrate from said layer of polycrystalline silicon.

14. (Currently Amended) A thin film transistor comprising:

a semiconductor substrate formed from a material selected from the group consisting of silicon dioxide, quartz and glass, said semiconductor substrate having hydrogen ions implanted therein by plasma source ion implantation, wherein said semiconductor substrate is free of sputtered metal contaminants;

a layer of polycrystalline silicon formed on at least a portion of semiconductor substrate, said layer of polycrystalline silicon having a smooth morphology;

a layer of a insulating material formed on at least a portion of said layer of polycrystalline silicon;

a gate oxide formed on said semiconductor substrate from said layer of silicon dioxide having hydrogen ions implanted therein by plasma source ion implantation;

a source region and a drain region formed in said layer of polycrystalline silicon; and

a gate electrode formed on said layer of insulating material.